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MEDICAL CENTER

SCHOOL OF MEDICINE AND DENTISTRY

DEPARTMENT OF MICROBIOLOGY
AND IMMUNOLOGY

\$1000

6 December 1991

Dr. Arthur D. Eisenberg
Council for Tobacco Research
900 3rd Avenue, 4th Floor
New York, NY 10022

Dear Art,

It was good to hear from you that the Council is active in supporting conferences on pertinent scientific topics. Conference support is as important as direct research support because conferences are major catalysts for research and offer the best means to ensure that research is carried out efficiently. The IIIrd International Meeting on High Pressure Biology is designed to be stimulatory for research in that both overviews of subject areas and the latest research results will be presented. Moreover, major efforts have been made to bring together a diversity of researchers working on pressure effects and to accommodate both new investigators and more experienced researchers. I enclose the form calling for abstracts, which also indicates the basic program.

As you can see, the program reflects the effort to bring together researchers working on basic biological effects of hydrostatic pressure in fields such as marine biology and those working on more applied aspects in hyperbaric medicine and diving physiology. For the latter groups, specific gas effects are important - in addition to effects of hydrostatic pressure alone. The conference is scheduled to just precede the annual meeting of the Undersea and Hyperbaric Medical Society (UHMS). The conference has purposely been kept separate from the UHMS meeting because many of the attendees at the conference will not be members of UHMS but have interests in high pressure biology applied to fields such as biotechnology, biophysics, marine biology, etc. Again, the effort is to bring diverse groups together.

The topics to be considered at the conference are directly pertinent to interests of the Council. Currently, the major effort in hyperbaric medicine is in hyperbaric oxygen therapy. Hyperbaric oxygen is the treatment of choice for carbon monoxide poisoning. It is useful also for a variety of

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other medical problems, including clostridial myonecrosis or gas gangrene, refractory osteomyelitis, various circulatory and respiratory diseases, etc. The list is growing as more research is carried out. Moreover, there is a strong desire to extend the field beyond use only of hyperbaric oxygen and to use other gases and gas mixtures. Many major medical centers now have hyperbaric units, and Duke University, where the conference will be held, has been a leader in the field. Part of the research is directed to developing new ways to manage cancer. These aspects of high-pressure biology will be the focus of session C of the conference and will include overview presentations by Dr. John Claybaugh from the Department of Clinical Investigation at the Tripler Army Medical Center in Hawaii and Dr. Stephen Thom who is Director of the hyperbaric unit at the University of Pennsylvania Medical Center. Thus, the applications to be considered in the session will be primarily medical applications.

Traditionally, high-pressure research has been associated with marine biology because pressure increases with depth in the ocean by about 1 atmosphere for every ten meters depths to a maximum of about 1160 atmospheres at the bottom of the Challenger Deep in the Pacific Ocean. However, pressure is a cardinal environmental factor affecting all life on earth. We are specifically adapted to function best at approximately 1 atmosphere. Therefore, the first session of the conference will focus on basic cellular and molecular responses to pressure. Dr. Karel Heremans from the University of Louven in Belgium will give an overview of molecular responses to pressure with consideration of how pressure can be used to perturb biopolymers and how responses to perturbation can be used to learn more about the molecules. I shall review cellular aspects of the field and plan to consider both purely pressure effects and also gas effects, including effects of oxygen and nitrous oxide. Again, this emphasis is in keeping with the interest of the Council in oxygen toxicity and mutagenesis.

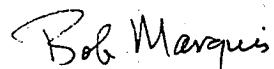
A major interest in high pressure biology is in deep diving. This interest is practical in relation to the problems of human divers working on marine construction and on various Navy projects, but also basic. A great deal has been learned about human physiology and stress responses from studies of deep diving physiology. The second session of the conference includes overview talks by Dr. J. C. Rostain from the University of Provence in Marseille on pressure effects on the nervous system and by Dr. A. G. Macdonald from the University of Aberdeen on pressure effects on other systems of the animal body.

also poster sessions. This arrangement will allow for young workers to present the results of their research. We expect that there will be approximately 80 attendees and that nearly all of the attendees will be involved in presentations. Thus, the conference will be of the small, intensive type.

The conference does have a registration fee. However, the fee was set low to allow for maximal attendance, and we badly need additional support. If the Council could provide us with even \$1,000, the amount would be a major help in meeting travel expenses of the overview speakers and of younger investigators who are generally on tight budgets. The support of the Council would be fully acknowledged in the conference literature, including the proceedings. It seems that the funding would be an excellent investment in an important field and also would encourage workers in hyperbaric biology and medicine to submit applications for support to the Council.

If you have any questions, please call me, and I shall answer them. Also, if any members of the Council would like further information, they can call me at (716)275-1674 or Dr. Peter Bennett at Duke University.

Sincerely,



Robert E. Marquis
Professor of Microbiology & Immunology

Copy:
Dr. Peter Bennett